Art. I.—*On a New Species of Leperditia from the Silurian of Yass, New South Wales.*

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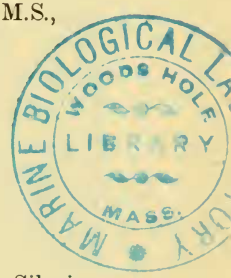

(With Plates I., II.)

[Read 15th April, 1909.]

Preliminary Remarks.

The principal published descriptions of the Yass Silurian fauna are to be found in C. Jenkins' paper "On the Geology of the Yass Plains,"[1] and Prof. T. W. E. David's "Report on the Fossiliferous Beds, Yass."[2] The former author records "*Pterinea*" and "*Modiolopsis*" from the horizon whence our specimens were obtained, and it is probable that our *Leperditia* and Jenkins' *Modiolopsis* are one and the same. In the vertical section in Prof. David's Report, ostracoda are recorded from bed I., associated with *Pterinea laminosa* (=(?) *Rhombopteria*) and "*Spirifer yassensis*" (=*S. aff. plicatellus*, L. sp.). Beyond the above references, no other information concerning the Yass *Leperditiae* appears to have been recorded.

In November, 1903, Mr. A. J. Shearsby, F.R.M.S., of Yass, presented to the National Museum, among other fossils, a good series of *Leperditiae* on blocks of shaly micaceous mudstone from Cliftonwood, Yass, N. S. Wales. This genus of ostracoda has been recorded from Australia,[3] but no species have yet been described.

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1 Proc. Linn. Soc. N. S. Wales, vol. iii., 1878, pp. 21-32.

2 Ann. Rep. Dept. Mines, N. S. Wales (for 1882), 1883, p. 148; and especially sections (vertical and horizontal), with accompanying notes.

3 Prof Ralph Tate, in his "Cambrian Fossils of S. Australia," Trans. Roy. Soc. S. Australia, vol. xv., 1892, p. 187, records two forms of *Leperditia* in the Cambrian Limestone of (?) Curramulka, one of which he says "has much resemblance to *L. dermatoides*, Walcott." These examples of Tate's have been kindly lent me by my friend Mr. W. Howchin, and in addition two other specimens from Mr. Sweet's collection will presently be described.

Leperditia shearsbii, sp. nov. (Plate I.).

Description.—Carapace elongate, sub-oval. Right valve larger, and with the ventral overlap well-marked. Seen from the side, dorsal line straight, ventral margin evenly curved; narrowly rounded in front and incurving at a sharp angle to the antero-dorsal angle; widely rounded behind and meeting the dorsal border with little or no angularity, differing in this respect from the allied *L. marginata*, Keyserling sp.[1] Central tubercle situated in the middle of a large, well-defined prominence, and somewhat anterior in position. In front of this tumid area the surface of the valve is strongly compressed, and this is extended, as a narrow marginal flange, more or less all round the carapace. Casts of this ostracod show the marginal compression more uniformly. This latter feature was noticed by Keyserling, especially in his (?) adult or large example, and was ascribed to the presence of an inverted ventral plate. Some of the casts in the present series also support the idea of an internal flange. Behind the central tubercle the surface of the valve slopes, at first rather rapidly, and then gradually, to within the area of the posterior third. The lucid or muscle spot is best seen on the interior of the valves, appearing as a circular depression marked by a network of fine polygonal grooves with a general radial arrangement. Anterior tubercle (eye-spot) small, round and always conspicuous; situated closer to the antero-dorsal angle than in *L. balthica*, His. sp., and more exactly in the position shown by *L. marginata*. The structure of the valves is clearly brought out in weathered examples, and the coarse pittings and radial grooving in proximity to the central tubercle is then well seen.

Measurements (in millimetres).—

	Length	Height	Thickness
Spec. A.	3.75	2.25	—
Spec. B.	5	3	1 (rt. valve)
Spec. C.	7.5	4.75	—

1 "*Cypridina marginata*," Keyserling. Wissenschaftliche Beobachtungen auf einer Reise in das Petschora-Land (Geognostische Beobachtungen), 1846, p. 288, pl. xi., f. 16.

Affinities.—The well-known *L. balthica*, Hisinger sp.,[1] bears some points of resemblance to the above-described form, as in the structure of the carapace around the central tubercle; but the united valves are much thicker, the postero-dorsal angle is sharper, and the central tubercle is more median than in our species. Our fig. 2 is near *L. eichwaldi* of Schmidt,[2] in general outline, especially in his fig. 29. In *L. eichwaldi*, however, and the next to be noticed, there is a decided difference, in the sharp truncation of the postero-dorsal angle, already remarked upon, and which in our species is evenly rounded off. *L. eichwaldi* possesses a marginal flange, but not so well developed as in *L. marginata*, Keys. The figures of *L. marginata* given with Keyserling's original description show a great variation in size, but the essential characters are the same. Prof. T. Rupert Jones,[3] in reviewing this species, remarked that he suspected the smaller individual to be an adult form of a distinct species. The present extensive series shows just such a large amount of variation in size, which naturally leads us to conclude that Keyserling's species, like ours, was really subject to great dimensional variation. In the relative thickness of the carapace and the position of the central tubercle, the Australian and Petschora-Land specimens agree, leaving the fundamental and characteristic differences of the shape of the hinder end of the carapace as sufficiently striking to warrant a new designation for the Yass examples.

Other species of the *L. marginata* type which may be compared with *L. shearsbii* are *L. isochilinoides*, Jones,[4] from schistose sandstone of Devonian age, Spitzbergen, and *L. nordenskjoeldi*, Schmidt,[5] from Upper Silurian rocks in the Island of Waigatsch. The latter species, however, is not so narrow in front (side aspect), nor so roundly truncate at the dorsal angle of the hinder end.

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1 "*Cytherina balthica*," Hisinger. Lethæa Suecica, 1837, p. 10 and 118, pl. i., figs. 2, a, b; pl. xxx., fig. 1.

2 "Ueber die Russischen silurischen Leperditien." Mem. Acad. Imp. Sci. St. Petersb., ser. 7, vol. xxi., 1874, p. 17, pl.— figs. 19-21.

3 "Notes on the Palæozoic Bivalved Entomostraca, No. iii. Some species of *Leperditia*." Ann. Mag. Nat. Hist., ser. 2, vol. xvii., 1856, p. 94.

4 Ann. Mag. Nat. Hist., ser. 5, vol. xii., 1883, p. 247, pl. ix., figs. 1-9.

5 Mem. Acad. Imp. Sci. St. Petersb., ser. 7, vol. xxxi., No. 5, 1883, pl. i., figs. 29-32.

L. marginata, Keys., which may be regarded as the nearest related form to ours, has been recorded from Upper Silurian strata of the Swedish and Russian Baltic area. The form recorded by Prof. Jones from Silurian Limestones, Pine Island Lake, on the English or Great River, Canada, under the above name[1], was later re-determined as *Isochilina grandis*. A British example of *L. marginata* is known from the Downtonian Sandstone of Kington, Herefordshire[2].

Occurrence.—In flaggy micaceous sandstone of Upper Silurian age. Cliftonwood, Yass, N. S. Wales.

Notes on the Leperditia Bed and Associated Strata.

The following note on the bed has been kindly supplied by Mr. Shearsby.—"*Leperditiae*. These are found in large numbers in a thin layer of micaceous mudstones shown in the photograph (Pl. II.) by a thin white line. Myriads of these occur in a layer which is not more than an inch thick. Only a few are to be found just above or below this zone; perhaps the matrix—sandstone—was unsuitable for their preservation. In this thin layer, also, are to be found enormous numbers of a bivalve shell, probably referable to *Rhombopteria*."

Mr. Shearsby has kindly forwarded an interesting collection of fossils associated with the *Leperditiae*, and has supplemented these with notes of other genera and species as given below.[3]

The *Leperditia* Bed.—The bivalve shell referred to by Mr. Shearsby is closely allied to *Rhombopteria*, and may prove to be identical with De Koninck's *Pteria laminosa*, which that author recorded[4] from "argillaceous limestone, Yass District." In the same bed there is a *Loronema* (casts), and some crushed shells of a *Spirifer* allied to *S. plicatellus*, L. sp.

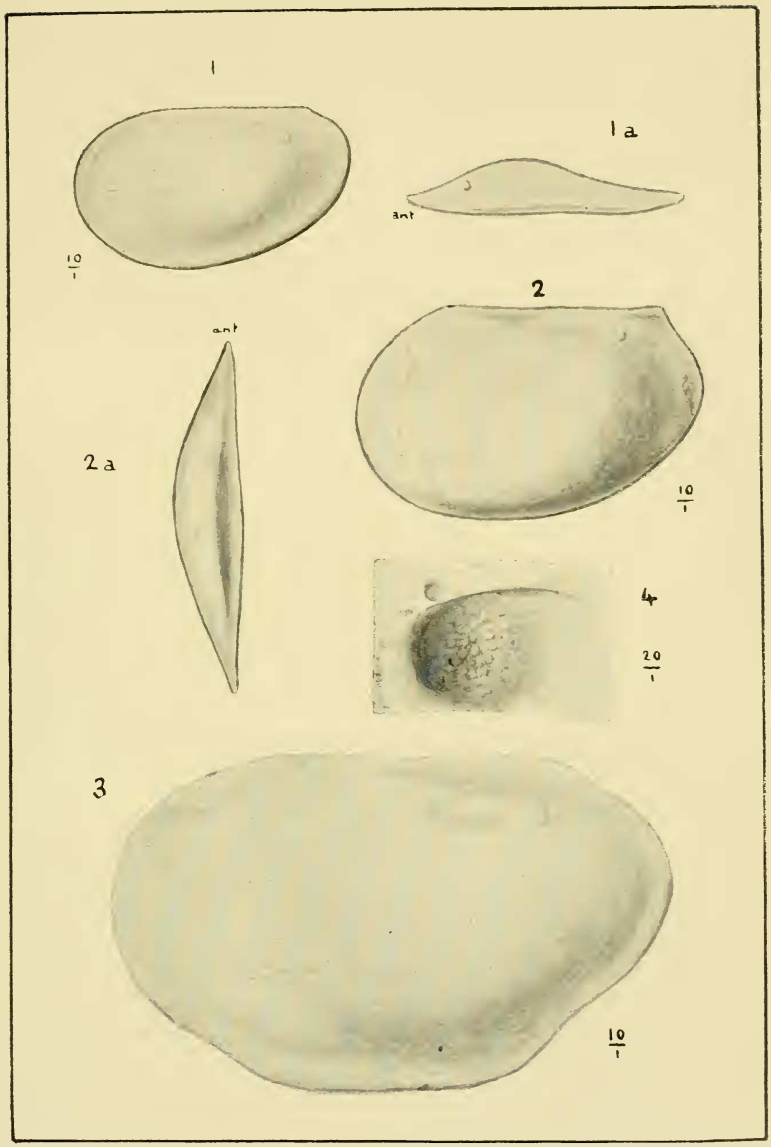
Below the *Leperditia* Bed.—*Spirifer* cf. *plicatellus* (narrow var.); *Favosites* sp., a branching form (Mr. Shearsby has traced one example for over a foot in length, giving off many branches). This latter occurs 12 inches below the *Spirifer* bed. Near the

1 Ann. Mag. Nat. Hist., ser. 2, vol. xvii., 1856, p. 94, pl. vii., fig. 14.

2 Loc. supra cit., p. 95, pl. vii., fig. 15.

3 Details of the separate horizons and their fossil faunas will be shortly given in a paper by Mr. Shearsby.

4 Mem. Geol. Surv. N. S. Wales, Palæont., No. 6, 1898, p. 92, pl. iii., fig. 12.



F.C. del.

Leperditia shearsbii, sp. nov., Up. Silurian, Yass.